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ABSTRACT

A discriminant analysis of the relationships between 335 Florida students' first and second grade scores on the reading subtests of the Metropolitan Achievement Test (MAT) and their third grade scores on the Florida Statewide Assessment Test (FSAT) was undertaken, using race, sex, and intelligence as independent variables. Three null hypotheses were tested, suggesting that no significant relationships would be found between first or second grade MAT scores and FSAT results. Discriminant function analysis was found to be an inappropriate statistic for one of the nine FSAT standards (basic vocabulary), because only two children in the entire sample did not achieve mastery of it. A number of significant relationships were found between FSAT standards and student achievement scores after grade one, after grade two, and after both grades; therefore, all three null hypotheses were rejected. Since MAT subtests for word knowledge and word analysis significantly predicted meeting the FSAT standards, it was advised that instruction in the various subskills of these predictor variables be included in Florida schools. (RL)

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THE RELATIONSHIPS AMONG MAT READING SUBTEST SCORES
AND MASTERY OF THE THIRD GRADE FSAT READING STANDARDS
ACCORDING TO PUPIL RACE, SEX, AND INTELLIGENCE

Susie Emond

The purpose of this study was to determine the nature of the relationships among scores on the reading subtests on the Metropolitan Achievement Test (MAT), given at the end of first and second grades with mastery of the reading standards of the Florida Statewide Assessment Test (FSAT), given at the beginning of third grade. While assessment is concerned with the three basic skills of reading, writing, and mathematics, this study focused only on reading. Reading is a long-term, continuous process that is not only related to but also affects progress in other basic skill areas.

Concern for accountability in Florida public schools had its roots in the Educational Accountability Act of 1971. The Florida Legislature revised this act twice, 1974 and 1976, to consolidate and expand all statutes concerned with any aspect of this issue into this one act.

The Florida Statewide Assessment Program, which began in 1971, was an outgrowth of the need to improve the quality of education. The development of the criterion-referenced test was intended to determine the extent to which students were developing basic skills and to aid in constructive educational change.

Important excerpts from the Accountability Act of 1976 include the following:

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1. The development and administration of an assessment program to determine the status and progress of students in grades 3, 5, 8, and 11 toward the mastery of statewide minimum performance standards in the areas of reading, writing, and mathematics.
2. To achievement of basic skills in reading, writing, and mathematics as the first priority of the schools.
3. The establishment of district-wide comprehensive programs of pupil progression based on mastery of the minimum standards and evaluation of performance (p. 7).

Educational decisions that will affect the progress of students are based, in part, on results of the assessment test. Third grade seems to be the first critical point at which student progress is formally tested and weaknesses identified. All of the minimum performance standards identified and tested at third grade are retested in the other assessment tests given in grades 5, 8, and 11. It is assumed that these standards reflect basic skills. If these skills are not attained early in school, students will have difficulty with the curriculum as they advance through school.

If pupil progression plans are to be built partially on these results, why wait until third grade to aid students who might need possible remediation? If classroom teachers had information at the end of the first and second grades that could predict later performance on the third grade test, they could intervene and possibly prevent children from experiencing the feelings of frustration and failure at later points in their lives.

The most comprehensive and consistent information available on students is race, sex, and scores on standardized achievement and intelligence tests. This study, therefore, determined the relationships of these variables to mastery of the reading standards

on the state assessment test.

There were 1,676 students enrolled in third grade in the Alachua County public schools for the 1977-78 school year. A random numbers table was used to randomly select 20 percent of the students for use in this study. All students were included on the basis of the available information, as follows:

1. Complete scores on the reading subtests of the Metropolitan Achievement Test given in grade one in 1975-76 and grade two in 1976-77.
2. Score on the Otis-Lennon Mental Ability Test given along with the achievement test at the end of grade two.
3. Complete scores on the reading portion of the Florida Statewide Assessment Test given in third grade.

If students were eliminated due to any of the previously stated reasons, additional students were sampled until complete data were included for 335 students or 20 percent of the total population.

Because this study was designed to determine the degree to which a relationship existed among subtest scores on two achievement tests with achievement of performance standards on an assessment test, the achievement of reading performance standards was treated as a dichotomy for purposes of this study. This dichotomized variable was assigned either a one or two numerical value to represent the fact that the student achieved or did not achieve mastery of the standard. Standard scores on all subtests of the achievement tests measured were tabulated from the test records of all students included in the sample. Their use enabled the results

of all subtests from the same subtest area to be compared for all batteries and forms on a single common scale. They were also more likely to reflect sampling from a normal distribution than the use of raw scores. Analysis of the discriminant function, was the same as in multiple regression with the dependent variable assuming the values of one and two, respectively meaning achievement or non-achievement of the reading standards. The magnitude and statistical significance of the variance of the dependent variable was identified and estimated in terms of what was shared with the independent variables.

A stepwise selection method was utilized in entering the variables into the discriminant analysis. This method, in conjunction with the procedure of Wilks' Lambda, enabled the independent variables to be selected on the basis of their discriminating power. The single variable, therefore, which had the highest value on the selection criterion was paired singularly with each of the other variables to produce the best criterion score. The production of the two variables with the best value entered the regression equation and the process continued with the combination of other scores until all of the variables had been selected or the inclusion of the remaining ones did not provide improvement in the criterion score. Rao's V was another test of significance used through which change in the statistics affected the magnitude of the prediction equation. The greater the change in Rao's V, the better the prediction equation. On the basis of the weights of the independent variables and the percent of time the variables

were correctly categorized, the resulting equation maximally predicted which group each member probably belonged.

The unstandardized discriminant function coefficients for each predictor variable were also included in the analyses. These partial coefficients measured the unique contribution of each variable and would allow a teacher to enter standard scores of children not included in the sample into the weights of the equation in order to derive scores close to those of the successful and unsuccessful groups, thus enabling a teacher to decide group membership for other children. The standard score of each predictor variable would be multiplied times its unstandardized coefficient plus a constant to equal the score. A score close to 1 would denote achievement of the standard and a score closest to 2 non-achievement.

The meaning of the standards on the Florida Statewide Assessment Test are as follows:

- A Acquire a basic vocabulary
- C Determine word meaning from word parts
- F Find information in a message
- G Determine cause and effect of event or action
- H Determine the generalization supported by a message
- I Identify fantasy, fact, and opinion
- J Recognize irrelevant and invalid statements
- K Follow oral and written directions
- M Use appropriate reference skills

The variables of race, sex, and intelligence were controlled through the selection process. There were only five children randomly sampled who were representative of races other than black or white. The data for race, therefore, were recoded as either white or non-white in order to have a large enough N for statistical purposes.

The deviation IQ scores were also grouped for statistical analysis. Three groups were formed as follows:

1. A low range ability group with IQ scores of 89 or less.
2. A middle range ability group with IQ scores of 90-100.
3. A high range ability group with IQ scores of 110 and above.

The relationships between the independent variables, reading achievement subtest scores, and the dependent variables, assessment scores, were analyzed first by race, second by sex, and third by IQ scores.

Discriminant function analysis was found to be an inappropriate statistic for Standard A as only two children in the entire sample did not achieve mastery of it. All females and females with high IQs were successful on Standard A. The tables, therefore, that present the analysis of the data only include results beginning with Standard C.

Hypothesis #1

There is no relationship among reading subtest scores of the Metropolitan Achievement Test (MAT) at the end of grade one and achievement of the reading standards on the third grade Florida Statewide Assessment Test (FSAT) according to pupil race, sex, and intelligence.

Race

Table 3 presents the results of the scores on the MAT and the FSAT when they were analyzed by race, white and non-white. Analyses of the data revealed significant differences on all of the standards except A for the group of white children. For the non-white group, significant differences were found on all of the standards except A and K. For the white children, MAT subtest Word Knowledge was the most significant predictor of future achievement for standards C and K and in combination with MAT subtest Word Analysis for standards F, H, I, J, and M. Students were correctly categorized from 68.51 to 90.64 percent of the time.

For the non-white children, Word Knowledge was a significant predictor for two standards C and J. Standard C was the same as for the white group, but categorized students at a lower percent level. The combination of Word Analysis and Word Knowledge was significant for standards G, H, and I. Students were correctly categorized from 46.00 to 73.00 percent of the time. Word Knowledge and Word Analysis were the most effective predictors for both groups on standards H and I but showed a higher correlation for the group of white children.

Sex

Table 4 presents the results of the scores when they were analyzed by sex. For the males at the end of grade one, Word Knowledge, by itself, was a significant predictor for standards

K and M, correctly categorizing students from 68.57 to 84.00 percent of the time. The combination of Work Knowledge and Word Analysis effectively predicted achievement for standards F, G, H, and I, from 70.29 to 74.86 percent of the time. The addition of Reading to this combination predicted for Standard J 72.57 percent of the time. Thus, significant correlations were found for all standards except A when Work Knowledge combined with Word Analysis and/or Reading as predictor variables.

For females at the end of first grade, Word Knowledge was a significant predictor for standards C, F, G, I, J, and M, correctly categorizing students 70.62 to 89.37 percent of the time. In combination with Word Analysis, it was more predictive of standard K 67.50 percent of the time. When Reading was added to this combination, the three variables significantly predicted standard H 75.00 percent of the time. Thus, significant correlations were found for all standards except A.

Intelligence

Table 5 presents the results of the scores when they were analyzed by an intelligence measure and divided into low, average, and high ability groups. For those children grouped by IQ of 89 or less, Word Analysis was predictive of achievement for standards H, I, and J but only statistically significant for standard I, correctly categorizing students 75.47 percent of the time. Combined with Word Knowledge, it predicted for standards C, F, G, and M, but none were statistically significant.

For children with an IQ of 19-110, significant differences were found for all standards except A and K. Word Knowledge was the best predictor of success for standards C, J, and M with a range of 61.59 to 80.43 percent of the time in the correct categorization of the scores. When combined with Word Analysis, it predicted for standards F, G, H, and I. All differences were statistically significant from 63.77 to 71.01 percent of the time in being categorized correctly.

For children with a high ability of 110 and above, Word Knowledge was the best predictor for standard K and M. Word Analysis was best for F, G, H, and I but never statistically significant. Reading and Word Knowledge were significant for standard C, however, 84.03 percent of the time.

Summary

Except for standard A in regard to pupil race, sex, and intelligence, significant differences were found between achievement and assessment scores at the end of grade one. Thus, null-hypothesis #1 was not accepted.

Hypothesis #2

There is no relationship among reading subtest scores on the Metropolitan Achievement Test (MAT) at the end of grade two and achievement of the reading standards on the third grade Florida Statewide Assessment Test (FSAT) according to pupil race, sex, and intelligence.

Race

Table 6 presents the results of the data when they were analyzed by race, white and non-white. All results were statistically significant for the group of white children. Reading, Word Analysis, and Word Knowledge were the best predictors for standards C, F, G, I, J, ranging from 75.74 to 78.30 percent of the time that students were correctly categorized. Reading and Word Analysis predicted best for standard H 80.00 percent of the time for Word Knowledge and Word Analysis for standard K 78.72 percent of the time.

For the group of non-white children, Word Analysis was the best predictor for standards C, G, and M. In combination with Word Knowledge, it predicted for standards F, H, I, and J. Statistically significant percents ranged from 56.00 to 73.00 in the correct categorization of students.

Sex

Table 7 presents the results of the data when they were analyzed by sex. For the males at the end of grade two, all results were statistically significant. Word Analysis and Word Knowledge were the best predictors for standards C, G, and K, ranging from 78.86 to 80.00 percents. Word Knowledge and Reading best predicted standard M 66.86 percent of the time and the combination of all three variables were necessary to predict success for standards H, I, and J.

For females at the same grade level, all results were sta-

tistically significant except for standard K. Word Analysis and Reading were the best predictors for standards C, F, G, H, and I, correctly categorizing students from 69.37 to 73.12 percent of the time. Reading was the best predictor for standard M and Word Knowledge, Word Analysis and Reading for standard J.

Intelligence

Table 8 presents the results of the data when they were analyzed by an intelligence measure into a low, average, and high ability group.

For the children in the low group, with an IQ of 89 or less, significant differences were only found for standards C, F, I, and M. The combinations of Reading and Word Knowledge were the best and significant predictors for standards C, F, I, and M, correctly categorizing students from 67.92 to 73.58 percent of the time.

For the children in the average group, with IQs of 90-110, all results were statistically significant. Word Analysis and Word Knowledge were the best predictors for standard C and G, correctly categorizing students from 71.01 to 76.09 percent of the time. Word Knowledge and Reading were best for standards J and K, Word Analysis and Reading for standard F, Reading for standard M, and the combination of Word Analysis, Word Knowledge and Reading for standards H and I. The range of students being correctly categorized went from 71.01 to 77.54 percent of the time.

For the children in the high group with IQs of 110 and above,

significant results were found for all standards except A, H, K, and M. Word Analysis was the best predictor for standard C 90.28 percent of the time. Word Knowledge best predicted standard F 77.08 percent of the time. Readings was the best predictor for standard I and Reading and Word Knowledge best predicted standard G 96.53 and 72.22 percent of the time.

Summary

In regard to pupil race, sex, and intelligence, null-hypothesis #2 was not accepted for standard A. Relationships were found to exist between achievement and assessment scores at the end of grade two.

Hypothesis #3

There is no relationship among reading subtest scores on the Metropolitan Achievement Test (MAT) at the end of both grades one and two and achievement of the reading standards on the third grade Florida Statewide Assessment Test (FSAT) according to pupil race, sex, and intelligence.

Race

Table 9 presents the results of the data when they were analyzed by race, white and non-white. For the white children, significant differences were found on all standards. Various combinations of the six predictor variables from the two tests were present. Subtests Reading-2 and Word Analysis-2 were partially significant predictor variables for standards C, F, G, H, and J, correctly

categorizing students from 69.79 to 80.00 percent of the time. The addition of Word Knowledge-2 to the other grade subtests was also significant for standards F, G, I, J, K, and M.

For the non-white children, significant differences were found on all standards except K. The percents of students correctly categorized ranged from 67.00 to 75.00 and were lower than for the white group. Word Analysis-2 was used as part of the prediction equation for all standards except A and K. Most of the prediction equations only included two variables while those for the white group included three or more variables in the prediction equation.

Sex

Table 10 presents the results of the data when they were analyzed by sex. For the males, significant differences were found for all standards except A. Word Knowledge-2 was used in combination with other variables to predict future success for all assessment scores. Word Analysis-2 was the next variable used most often as part of the prediction equation. The range of students correctly classified ranged from 66.86 to 82.86 percent of the time.

For the females, significant differences were found for all standards except A and M. The range of students correctly classified ranged from 67.50 to 88.12 percent of the time. Word Knowledge-1 was the most commonly used variable in the prediction equation and singularly accounted for the highest amount of vari-

ance for standard C.

Intelligence

Table 11 presents the results of the data when they were analyzed by an intelligence measure into three ability groups.

For the group of children with IQs of 89 or less, Reading-2 was a predicting variable used as part of every equation that resulted in significant results: standards C, F, I, and M. The percents of students correctly categorized ranged from 73.58 to 83.58. Word Knowledge-2 was the next most commonly used predictor variable for standards F, I, and M.

For the group of children with IQs of 90-110, significant results were found on all standards except A. The percents of students categorized correctly ranged from 64.49 to 76.81. Word Knowledge-2 and Word Knowledge-1 were the predictor variables used most often as part of the prediction equation.

For the group of children with high IQs of 110 and above, significant differences were found for standards C, F, G, I, and J, ranging from 72.22 to 95.53. Reading-2 and Word Knowledge-2 were used most often as part of the prediction equation.

Summary

Except for standard A, significant relationships were found between the achievement subtests at the end of both grades one and two and the reading standards on the assessment test. Thus, null-hypothesis #3 was not accepted.

The implementation of this statewide assessment program has caused concern and anxiety for many children, parents, teachers, and administrators in Florida schools. The law mandates counties to provide compensatory education for children who fail to master the standards. It is hoped that although this study has not allowed for the effects of test anxiety created in a testing situation, some of the tension might be eased through programs that emphasize preventive instead of remedial measures.

This study has not given any consideration to the differences in maturation and stages of developmental growth that greatly affect many children's ability to perform on tests. It is important to this investigator that the results of this study be used as part of, not in isolation of, other supportive evidence for the retention or promotion of third grade students. Attention must be paid to the self-concepts and developmental growth of students as other important determining factors of such an important decision. The feelings and attitudes of the students and the kind of learning environment and emotional climate of classrooms play significant roles in the potential achievement and success or potential failure and defeat of children.

The results of this study have direct implication also for first and second grade teachers. The MAT subtests Word Knowledge and Word Analysis significantly predicted success on the standards of the FSAT. It would seem advisable, therefore, to include in-

struction in the various subskills of these predictor variables. The development of skill in classification, word-picture association, synonyms, antonyms, sound-symbol relationships, and other decoding skills would provide children with a strong foundation to not only perform well on the FSAT but to become independent readers as well.

The results of this study have direct implications for a very limited population. It is hoped, however, that there might be application and/or modification for other states using assessment tests at the early elementary level.

Table 3

Relationship among Reading Subtest Scores of the MAT and Reading Standards of the FSAT at the end of grade one by race

(FSAT) Standard by Race	(MAT) Independent Variable in the Prediction Equation	Percentage of Cases Categorized Correctly	Degrees of Freedom	Wilks' Lambda	Change in Rao's V
C	white Word Knowledge-1	90.21	1,233	.83626*	45.62007*
	non-white Word Knowledge-1	72.00	1,98	.83914*	18.78642*
F	white Word Knowledge-1	70.21	2,232	.83590*	2.51656
	non-white Word Analysis-1	73.00	1,98	.88757*	12.41380*
G	white Word Knowledge-1	72.34	3,231	.83558*	1.42567
	non-white Word Analysis-1 Reading-1 Word Knowledge-1	70.00	2,97	.87378*	1.69698
H	white Word Knowledge-1	72.34	2,232	.83558*	1.42567
	non-white Word Analysis-1 Word Knowledge-1	71.00	2,97	.84048*	2.31615
I	white Word Knowledge-1	71.49	2,232	.85119*	3.82268
	non-white Word Analysis-1 Word Knowledge-1	68.00	2,97	.85669*	1.73487
J	white Word Knowledge-1	69.79	2,232	.82818*	5.17163
	non-white Word Knowledge-1	46.00	1,98	.86266*	15.60263*

*p < .001

Table 3 Continued

(FSAT) Standard by Race	(MAT) Independent Variable in the Prediction Equation	Percentage of Cases Categorized Correctly	Degrees of Freedom	Wilks' Lambda	Change in Rao's V	
K	white	Word Knowledge-1	90.64	1,233	.92041*	20.14952*
	non-white	Word Knowledge-1	57.00	2,97	.92065	4.05079
		Word Analysis-1				
M	white	Word Knowledge-1	68.51	2,232	.89429*	2.58859
	non-white	Word Analysis-1				
		Word Analysis-1	70.00	1,98	.87382*	14.15244*

*p < .001

Table 4

Relationship among Reading Subtest Scores of the MAT and Reading Standards of the FSAT at the end of grade one by sex

(FSAT) Standard by Sex	(MAT) Independent Variable in the Prediction Equation	Percentage of Cases Categorized Correctly	Degrees of Freedom	Wilks' Lambda	Change in Rao's V
C	Males Word Knowledge-I Reading-I	70.86	2, 172	.79646*	2.70605
	Females Word Knowledge-I	88.12	1, 158	.81221*	36.52986*
F	Males Word Analysis-I	70.29	2, 172	.78432*	5.8287
	Females Word Knowledge-I	84.38	1, 158	.89223*	19.08351*
G	Males Word Analysis-I	72.57	2, 172	.78920*	4.70253
	Females Word Knowledge-I	89.37	1, 158	.82923*	32.53728*
H	Males Word Knowledge-I	74.86	2, 172	.76575*	6.11391
	Females Word Knowledge-I Word Analysis-I Reading-I	75.00	3, 156	.78622*	2.13919
I	Males Word Analysis-I Word Knowledge-I	73.71	2, 172	.76632*	1.54909
	Females Word Knowledge-I	86.25	1, 158	.84355*	29.30327*
J	Males Word Knowledge-I Reading-I	72.57	3, 171	.7918*	1.69743
	Females Word Analysis-I Word Knowledge-I	70.62	1, 158	.78920*	42.20299*
K	Males Word Knowledge-I	84.00	1, 173	.90012*	19.19730*
	Females Word Knowledge-I Word Analysis-I	67.50	2, 157	.91192*	1.95331

*p ≤ .001

Table 4 Continued

(FSAT) Standard by Sex	(MAT) Independent Variable in the Prediction Equation	Percentage of Cases Categorized Correctly	Degrees of Freedom	Wilks' Lambda	Change in Rao's V
M	Males Word Knowledge-I	68.57	1, 173	.84818*	30.96664*
	Females Word Knowledge-I	78.13	1, 158	.92897*	12.08084*

*p ≤ .001

Table 5

Relationship among Reading Subtest Scores of the MAT and Reading Standards of the FSAT at the end of grade one by intelligence

(FSAT) Standard by Intelligence	(MAT) Independent Variable in the Prediction Equation	Percentage of Cases Categorized Correctly	Degrees of Freedom	Wilks' Lambda	Change in Rao's V	
C	Low	Word Analysis-1	77.36	2,50	.77177	1.73618
	Average	Word Knowledge-1	80.43	1,136	.87117*	20.11237*
	High	Reading-1	84.03	2,141	.91032*	1.43362
		Word Knowledge-1				
F	Low	Word Knowledge-1	71.70	2,50	.84044	1.69706
	Average	Word Analysis-1				
		Word Knowledge-1	63.77	2,135	.87268*	2.97452
	High	Word Analysis-1	78.47	1,142	.94442	8.35743
G	Low	Word Knowledge-1	64.15	2,50	.87300	1.19026
	Average	Word Analysis-1				
		Word Knowledge-1	69.57	2,135	.82769*	2.85526
	High	Word Analysis-1	75.69	1,142	.94620	8.07422
H	Low	Word Analysis-1	73.58	1,151	.87399	7.35343
	Average	Word Knowledge-1	71.01	2,135	.81525*	2.70984
		Word Analysis-1				
	High	Word Analysis-1	78.47	1,142	.95321	6.9696
I	Low	Word Analysis-1	75.47	1,51	.78799*	13.72136*
	Average	Word Analysis-1	66.67	2,135	.89206*	1.90063
		Word Knowledge-1				
	High	Word Analysis-1	83.33	1,142	.95612	6.51626

*p ≤ .001

Table 5 Continued

(FSAT) Standard by Intelligence	(MAT) Independent Variable in the Prediction Equation	Percentage of Cases Categorized Correctly	Degrees of Freedom	Wilks' Lambda	Change in Rao's V	
J	Low	Word Analysis-1	52.83	1,51	.93175	3.73600
	Average	Word Knowledge-1	61.59	1,136	.91601*	12.47026*
	High	Word Analysis-1	63.89	2,141	.92717	1.12754
		Word Knowledge-1				
K	Low	Word Knowledge-1	54.72	1,51	.96809	1.68114
	Average	Word Knowledge-1	62.32	2,135	.93746	2.74741
		Word Analysis-1				
	High	Word Knowledge-1	91.67	1,142	.96383	5.32850
M	Low	Word Analysis-1	71.70	2,50	.85928	1.19586
	Average	Word Knowledge-1				
		Word Knowledge-1	68.12	1,136	.92016*	11.80089*
	High	Word Knowledge-1	83.33	1,142	.98640	1.95764

*p ≤ .001

Table 6

Relationship among Reading Subtest Scores of the MAT and Reading Standards of the FSAT at the end of grade two by race

(FSAT) Standard by race	(MAT) Independent Variable in the Prediction Equation	Percentage of Cases Categorized Correctly	Degrees of Freedom	Wilks' Lambda	Change in Rao's V
C	white Reading-2	76.60	3,231	.83032*	1.34682
	Word Analysis-2				
	Word Knowledge-2				
F	non-white Word Analysis-2	70.00	1,98	.77220	28.90875*
	Word Analysis-2				
	Word Knowledge-2				
G	white Reading-2	75.74	3,231	.76586*	2.45282
	Word Analysis-2				
	Word Knowledge-2				
H	non-white Word Analysis-2	67.00	2,97	.77949*	2.64697
	Word Analysis-2				
	Word Knowledge-2				
I	white Reading-2	77.45	3,231	.74352*	3.99709
	Word Analysis-2				
	Word Knowledge-2				
J	non-white Word Analysis-2	58.00	1,98	.86174*	15.72269*
	Word Analysis-2				
	Word Knowledge-2				
K	white Reading-2	80.00	2,232	.73736*	10.19917*
	Word Analysis-2				
	Word Knowledge-2				
L	non-white Word Analysis-2	66.00	2,97	.81608*	2.76941
	Word Analysis-2				
	Word Knowledge-2				
M	white Reading-2	78.30	3,231	.77663*	2.54941
	Word Analysis-2				
	Word Knowledge-2				
N	non-white Word Analysis-2	68.00	2,97	.79389*	1.63179
	Word Analysis-2				
	Word Knowledge-2				

*p ≤ .001

Table 6 Continued

(FSAT) Standard by race	(MAT) Independent Variable in the Prediction Equation	Percentage of Cases Categorized Correctly	Degrees of Freedom	Wilks' Lambda	Change in Rao's V
J	white Reading-2	76.60	3,231	.68771*	2.04446
	Word Knowledge-2				
	Word Analysis-2				
K	non-white Word Analysis-2	73.00	2,97	.72925*	4.75848
	Word Analysis-2				
	Word Knowledge-2				
L	white Word Knowledge-2	78.72	2,232	.85354*	3.72601
	Word Knowledge-2				
	Word Analysis-2				
M	non-white Word Knowledge-2	71.06	1,98	.94297	5.92724
	Word Knowledge-2				
	Word Analysis-2				
N	white Reading-2	68.83	2,232	.88606*	3.78748
	Word Knowledge-2				
	Word Analysis-2				
O	non-white Word Knowledge-2	56.00	1,98	.82605*	20.63519*
	Word Knowledge-2				
	Word Analysis-2				

*p ≤ .001

Table 7

Relationship among Reading Subtest Scores of the MAT and Reading Standards of the FSAT at the end of grade two by sex

(FSAT) Standard by sex	(MAT) Independent Variable in the Prediction Equation	Percentage of Cases Categorized Correctly	Degrees of Freedom	Wilks' Lambda	Change in Rao's V
C	Males Word Analysis-2	78.86	2,172	.72141*	4.38913
	Females Word Knowledge-2 Reading-2 Word Analysis-2	71.25	2,157	.87128*	1.86174
F	Males Word Knowledge-2 Word Analysis-2 Reading-2	76.57	3,171	.68611*	2.62801
	Females Word Analysis-2 Reading-2	69.37	2,157	.86045*	2.94218
G	Males Word Knowledge-2 Word Analysis-2	80.00	2,172	.68274*	10.93060*
	Females Reading-2 Word Analysis-2	73.12	2,157	.83539*	2.52432
H	Males Word Analysis-2 Word Knowledge-2 Reading-2	82.86	3,171	.63352*	2.74748
	Females Reading-2 Word Analysis-2	71.88	2,157	.82668*	3.87843
I	Males Word Knowledge-2 Word Analysis-2 Reading-2	78.86	3,171	.65646*	2.90218
	Females Word Analysis-2 Reading-2	72.50	2,157	.84813*	2.73930

*p < .001

Table 7 Continued

(FSAT) Standard by sex	(MAT) Independent Variable in the Prediction Equation	Percentage of Cases Categorized Correctly	Degrees of Freedom	Wilks' Lambda	Change in Rao's V
J	Males Word Knowledge-2 Reading-2	82.29	3,171	.62693*	2.3418
	Females Word Analysis-2 Word Analysis-2 Reading-2 Word Knowledge-2	76.25	3,156	.68676*	3.18251
K	Males Word Knowledge-2 Word Analysis-2	78.86	2,172	.7766*	3.8307
	Females Word Knowledge-2	82.50	1,158	.94944	8.41371
M	Males Word Knowledge-2 Reading-2	66.86	2,172	.79159*	3.30051
	Females Reading-2	77.50	1,158	.93189*	11.54807*

*p < .001

Table 8

Relationship among Reading Subtest Scores of the MAT and Reading Standards of the FSAT at the end of grade two by intelligence

(FSAT) Standard by intelligence	(MAT) Independent Variable in the Prediction Equation	Percentage of Cases Categorized Correctly	Degrees of Freedom	Wilks' Lambda	Change in Rao's V
C	Low Reading-2	67.92	2,50	.74051*	1.69672
	Average Word Knowledge-2	71.01	2,135	.87282*	2.34200
	High Word Knowledge-2	90.28	1,142	.91197*	13.70854*
F	Low Reading-2	73.58	2,50	.75243*	2.87543
	Average Word Knowledge-2	74.64	2,135	.78668*	5.18271
	High Reading-2	77.08	2,141	.89150*	2.05762
G	Low Word Analysis-2	47.17	1,51	.82891	10.52589
	Average Word Knowledge-2	76.09	2,135	.73867*	5.78563
	High Word Analysis-2	72.22	2,141	.89858*	1.45809
H	Low Reading-2	66.04	2,50	.84876	1.86219
	Average Word Analysis-2	77.54	3,134	.73990*	2.15021
	High Word Knowledge-2	87.50	1,142	.93468	9.92437

*p < .001

Table 8 Continued

(FSAT) Standard by intelligence	(MAT) Independent Variable in the Prediction Equation	Percentage of Cases Categorized Correctly	Degrees of Freedom	Wilks' Lambda	Change in Rao's V
I	Low Reading-2	73.58	2,50	.67697*	5.33037
	Average Word Knowledge-2	71.74	3,134	.80548*	1.62471
	High Reading-2	96.53	1,142	.92671*	11.23088*
J	Low Word Analysis-2	37.74	1,51	.82154	11.07755
	Average Word Knowledge-2	71.74	2,135	.75427*	1.59886
	High Reading-2	78.47	3,140	.79176*	1.82706
K	Low Word Knowledge-2	69.81	1,51	.89297	6.11212
	Average Word Knowledge-2	77.54	2,135	.85806*	1.61873
	High Reading-2	94.44	1,142	.96868	4.59248
M	Low Reading-2	73.58	2,50	.74360*	3.38249
	Average Word Knowledge-2	71.01	1,136	.91901*	11.98524*
	High Word Knowledge-2	86.81	1,142	.96580	5.02800

*p < .001

Table 9
Relationship among Reading Subtest Scores of the MAT and Reading Standards
of the FSAT at the end of both grades one and two by race

(FSAT) Standard by race	(MAT) Independent Variable in the Prediction Equation	Percentage of Cases Categorized Correctly	Degrees of Freedom	Wilks' Lambda	Change in Rao's V
C	white Word Knowledge-1 Reading-2	76.6	3,231	.81331*	1.48854
	non-white Word Analysis-2 Word Knowledge-1 Word Analysis-2	68.00	2,97	.7611*	1.8503
F	white Word Knowledge-2 Word Analysis-2 Reading-2	75.74	3,231	.76586*	2.45282
	non-white Word Analysis-2 Word Knowledge-2	67.00	2,97	.7795*	2.6470
G	white Reading-2 Word Analysis-2 Word Knowledge-2 Reading-1	77.87	4,230	.73623*	3.10139
	non-white Word Analysis-1 Word Analysis-2 Reading-2	67.00	3,96	.8371*	1.2852
H	white Word Analysis-2 Reading-2	80.00	2,232	.73736*	10.19917
	non-white Word Analysis-1 Word Knowledge-2 Word Analysis-2 Reading-2	71.00	4,95	.7892*	1.4841

*p < .001

Table 9 Continued

(FSAT) Standard by race	(MAT) Independent Variable in the Prediction Equation	Percentage of Cases Categorized Correctly	Degrees of Freedom	Wilks' Lambda	Change in Rao's V
I	white Word Knowledge-2 Word Analysis-2 Reading-2	78.30	3,231	.77663*	2.5494
	non-white Word Knowledge-2 Word Analysis-2	68.00	2,97	.7939*	* 1.6318
J	white Word Knowledge-1 Word Knowledge-2 Word Analysis-2 Reading-2	78.70	4,230	.68257*	2.54997
	non-white Word Analysis-1 Word Knowledge-2 Word Analysis-2	75.00	3,96	.7199*	1.7419
K	white Word Knowledge-2 Word Analysis-2	78.72	2,232	.85354*	3.72601
	non-white Word Knowledge-1 Word Analysis-1 Word Knowledge-2	64.00	3,96	.8853	4.9046
M	white Word Knowledge-1 Word Analysis-1 Word Knowledge-2 Reading-2	69.79	4,230	.85296*	3.41342
	non-white Word Analysis-1 Reading-1 Word Analysis-2	70.00	3,96	.8020*	1.7651

*p < .001

Table 10
Relationship among Reading Subtest Scores of the MAT and Reading Standards
of the FSAT at the end of both grades one and two by sex

(FSAT) Standard by sex	(MAT) Independent Variable in the Prediction Equation	Percentage of Cases Categorized Correctly	Degrees of Freedom	Wilks' Lambda	Change in Rao's V
C	Males Word Analysis-2 Word Knowledge-2	78.86	2,172	.7214*	4.3891
	Females Word Knowledge-1	88.12	1,158	.8122*	36.5299*
F	Males Word Knowledge-2 Word Analysis-2 Reading-2	76.57	3,171	.6861*	2.6280
	Females Word Analysis-2 Reading-2	69.37	2,157	.8604*	2.9422
G	Males Word Knowledge-2 Word Analysis-2	80.00	2,172	.6827*	10.9306*
	Females Word Knowledge-1 Reading-2	75.00	2,157	.8172*	2.7963
H	Males Word Knowledge-2 Word Analysis-2 Reading-2	82.86	3,171	.6335*	2.7475
	Females Word Knowledge-1 Word Analysis-1 Reading-1 Word Analysis-2	76.22	4,155	.7795*	2.2105

*p ≤ .001

Table 10 Continued

(FSAT) Standard by sex	(MAT) Independent Variable in the Prediction Equation	Percentage of Cases Categorized Correctly	Degrees of Freedom	Wilks' Lambda	Change in Rao's V
I	Males Word Knowledge-2 Word Analysis-2 Reading-2	78.86	3,171	.6565*	2.9022
	Females Word Knowledge-1 Word Analysis-2 Reading-1	74.37	3,156	.8236*	* 1.2792
J	Males Word Knowledge-2 Reading-2 Word Analysis-1 Word Analysis-2 Reading-1	81.14	6,168	.6089*	1.9770
	Females Word Knowledge-1 Word Knowledge-1 Word Analysis-1 Reading-2 Word Knowledge-2 Word Analysis-2	77.50	5,154	.6768*	1.5907
K	Males Word Analysis-1 Word Knowledge-2 Word Analysis-2	81.14	3,171	.7412*	9.4125
	Females Word Knowledge-1 Word Analysis-1	67.50	2,157	.9119*	* 1.9533

*p ≤ .001

3

Table 10 Continued

(FSAT) Standard by sex	(MAT) Independent Variable in the Prediction Equation	Percentage of Cases Categorized Correctly	Degrees of Freedom	Wilks' Lambda	Change in Rao's V
M	Males Word Knowledge-2 Reading-2	66.86	2,172	.7916*	3.3005
	Females Word Knowledge-1 Reading-1 Reading-2	63.12	3,156	.9144*	1.3964

*p ≤ .001

Table 11
Relationship among Reading Subtest Scores of the MAT and Reading Standards
of the FSAT at the end of both grades one and two by intelligence

(FSAT) Standard by intelligence	(MAT) Independent Variable in the Prediction Equation	Percentage of Cases Categorized Correctly	Degrees of Freedom	Wilks' Lambda	Change in Rao's V	
C	Low	Word Analysis-1 Reading-2	75.47	2,50	.6910*	6.6284
	Average	Word Knowledge-1 Word Knowledge-2	76.81	3,132	.82448*	1.4784
		Word Analysis-1 Word Analysis-2				
		Reading-1 Reading-2				
	High	Reading-1 Reading-2	84.03	2,141	.89662*	2.66422
	F	Low	Reading-1 Word Knowledge-2	73.58	3,49	.70185*
Average		Reading-2 Word Analysis-2	74.64	2,135	.78668*	5.18271
		Reading-2 Reading-2				
		Word Knowledge-2 Reading-2				
High		Word Knowledge-2 Reading-2	77.08	2,141	.89150*	2.0576
G		Low	Word Knowledge-1 Word Analysis-2	69.81	2,50	.80686
	Average	Word Knowledge-1 Word Knowledge-2	76.09	3,134	.7279*	2.72678
		Word Analysis-2 Word Analysis-2				
		Word Knowledge-2 Reading-2				
	High	Word Knowledge-2 Reading-2	72.22	2,141	.89858*	1.45809

*p < .001

*p < .001

Table 11 Continued

(FSAT) Standard by intelligence	(MAT) Independent Variable in the Prediction Equation	Percentage of Cases Categorized Correctly	Degrees of Freedom	Wilks' Lambda	Change in Rao's V	
H	Low	Word Analysis-1 Reading-2	69.81	2,50	.82800	3.24050
	Average	Word Knowledge-1	76.09	3,134	.73137*	4.30034
		Word Knowledge-2				
		Word Analysis-2				
	High	Word Knowledge-2				
	Low	Word Analysis-1 Word Analysis-2 Reading-2	83.02	3,49	.64654*	2.23256
I	Average	Word Knowledge-2	71.74	3,134	.80548*	1.62471
		Word Analysis-2				
		Reading-2				
	High	Reading-2				
	Low	Word Analysis-2	37.74	1,51	.82154	11.07755*
	J	Average	Word Analysis-1	73.19	3,134	.74360*
Word Knowledge-2						
Reading-2						
High		Word Knowledge-1 Word Knowledge-2 Word Analysis-2 Reading-2	77.78			

*p < .001

*p < .001

Table 11 Continued

(FSAT) Standard by Intelligence	(MAT) Independent Variable in the Prediction Equation	Percentage of Cases Categorized Correctly	Degrees of Freedom	Wilks' Lambda	Change in Rao's V	
K	Low	Word Knowledge-2	69.81	1,51	.89297	6.11212
	Average	Word Knowledge-1	77.54	3,134	.81291*	3.93246
		Word Analysis-1				
		Word Knowledge-2				
	High	Word Knowledge-1	91.67	1,142	.9638	5.3285
	Low	Word Knowledge-2	73.58	2,50	.7436*	3.38249
M	Average	Reading-2				
		Word Knowledge-1	64.49	2,135	.89938*	3.22912
		Reading-2				
	High	Word Knowledge-2	86.81	1,142	.96580	5.028

*p < .001